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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/782,194	02/19/2004	Sung-Bok Park	678-1158 (P10794)	4104

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EXAMINER
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DHARIA, PRABODH M

ART UNIT	PAPER NUMBER
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2629

MAIL DATE	DELIVERY MODE
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08/28/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/782,194	<b>Applicant(s)</b> PARK, SUNG-BOK	
	<b>Examiner</b> Prabodh M. Dharia	<b>Art Unit</b> 2629	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 13 July 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) 19 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 February 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
- ☒ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                                | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                       | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

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1. **Status:** Please all the replies and correspondence should be addressed to examiner's new art unit 2629. Receipt is acknowledged of papers submitted on 07-13-2007 under amendments and request for reconsideration, which have been placed of record in the file. Claims 1-18 are pending. Claim 19 has been cancelled.

***Response to Amendment***

2. The amendment filed on 07-13-2007 does not introduces any new matter into the disclosure. The added material is supported by the original disclosure. Applicant has amended independent claims 1,13 and cancelled claim 19.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-4 and 13-16 are rejected under 35 U.S.C. 102(e) as being anticipated by Lieu et al. (US 2003/0157971 A1).

Regarding Claims 1 and 13, Lieu et al. teaches a portable terminal (page 1, paragraph 7, Line 1) for displaying data on a screen (page 1, paragraph 7, Line 3), the portable terminal comprising: a video processor for converting the data into a displayable format (page 2,

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paragraphs 30,31,35) according to characteristics and size of the screen (page 1, paragraph 09); a sensing device for sensing rotation of the screen (page 3, paragraphs 40-43), the sensing device generating a sensing signal according to a rotating direction of the screen (page 3, paragraphs 40-43, page 4, paragraph 55); and a controller for determining the rotating direction of the screen according to the sensing signal (page 3, paragraphs 40-43, Page 4, paragraphs 52-56), and controlling the video processor to convert a format of the data in an opposite direction (page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-56) of the determined rotating direction by converting coordinate values of the data in order to display the data in an upright direction (page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6) and the LCD or liquid crystal display (pages 2,3, paragraphs 30-39); of Lieu are active matrix display for PDA or telephone (LCD being active matrix is well known to one ordinary skill in the art Herrmann et al. (US 6,335,928 B1) Col. 2, Lines 24-41, figure 1, Aho et al. (US 6,198,941 B1) Figure 1, Col. 3, Line 60 to Col. 4, Line 41). Therefore reorientation of the each pixel has to be carried out with respect to co-ordinate assigned with respect to origin ( $X=0$ ,  $Y=0$ ) of the image on to X-axis and Y-axis and computation carried out by processor.

Regarding Claims 2 and 14 Lieu et al. teaches the sensing device generates different sensing signals for first to fourth directions, each representing rotating directions of the screen (page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6, please see figures 5-9).

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Regarding Claims 3 and 15 Lieu et al. teaches a rotation angle of the first direction is (0 or 360) degree., a rotation angle of the second direction is 90.degree, a rotation angle of the third direction is 180.degree, and a rotation angle of the fourth direction is 270.degree (page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6, please see figures 5-9).

Regarding Claims 4 and 16 Lieu et al. teaches the controller determines one of the first to fourth directions to be the rotation angle according to the sensing signal (page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6, please see figures 5-9).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 5,6,12,17 and 18, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lieu et al. (US 2003/0157971) as applied to claim 1-4 and 13-16 above, and further in view of Cline et al. (US 4,710,876).

Regarding Claim 5, Lieu et al. fails to disclose or recite a memory for storing a lookup table of coordinate values, wherein the coordinate values are based on predetermined rotating directions of the screen.

However, Cline et al. a memory for storing a lookup table of coordinate values, wherein the coordinate values are based on predetermined rotating directions of the screen (see figure 9, Col. 9, Lines 12-46, Col. 6, Lines 32-42).

The reason to combine Cline et al. with Lieu et al. is to be able to not only accurately represent the characteristics of the images but also represent accurate direction of information to be displayed using predetermined coordinate values from ROM table or LUT.

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Cline et al. in the teaching of Lieu et al. to be able to have an accurate represented direction and characteristic (shading) information to be displayed for a highly complex technology as medical imaging (magnetic resonance imaging and position emission tomography, (see abstract).

Regarding Claim 6, Lieu et al. teaches rotating directions of the screen and corresponding to different sensing signals for each of first to fourth directions (please see figures 5-9), a key input module for selecting an automatic display mode for displaying the data in the upright direction regardless of the rotating direction of the screen, or a manual display mode for displaying the data in a normal direction regardless of the rotating direction of the screen; and orders the video processor to convert the displayable format of the data to display the data in an

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upright direction when in the automatic display mode (please see figures 5-9, page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6).

Cline et al. a memory for storing a lookup table of coordinate values, wherein the coordinate values are based on predetermined rotating directions of the screen (see figure 9, Col. 9, Lines 12-46, Col. 6, Lines 32-42).

Regarding Claim 12, Lieu et al. teaches the video processor to convert the displayable format of the data by converting coordinate values according to a rotating direction of the screen under the control of the controller (please see figures 5-9, page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6).

Cline et al. a memory for storing a lookup table of coordinate values, wherein the coordinate values are based on predetermined rotating directions of the screen (see figure 9, Col. 9, Lines 12-46, Col. 6, Lines 32-42).

Regarding Claim 17, Lieu et al. teaches determining a rotating direction of the screen according to the sensing signal (please see figures 5-9, page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6).

Cline et al. a memory for storing a lookup table of coordinate values, wherein the coordinate values are based on predetermined rotating directions of the screen (see figure 9, Col. 9, Lines 12-46, Col. 6, Lines 32-42).

Regarding Claim 18, Lieu et al. teaches selecting an automatic display mode for displaying the data in the upright direction regardless of the rotating direction of the screen, or a manual display mode for displaying the data in a normal direction regardless of the rotating direction of the screen (please see figures 5-9, page 1, paragraphs 7-10, page 3, paragraphs 40-43, Page 4, paragraphs 52-59 and paragraph 60, Lines 1-6).

7. Claims 7-11, are rejected under 35 U.S.C. 103(a) as being unpatentable over Lieu et al. (US 2003/0157971 A1) as applied to claim 1-4 and 13-16 above, and further in view of Hansen (US 4,445,011).

Regarding Claim 7, Lieu et al. fails to disclose liquid guide chamber filled with conductive liquid with sensors detecting movement of the conductive liquid to determine rotational angle along the X-axis and Y-axis.

However, Hansen teaches the sensing device (Col. 2, Lines 33-35, contact switches are sensors) comprises: a sensing body (Col. 2, Lines 33-39); a liquid guide chamber provided within the sensing body (Col. 4, Lines 54-57); a plurality of sensing terminals mounted on the sensing body (Col. 4, lines 51-61), wherein the sensing terminals are exposed to an inner surface of the sensing body (Col. 4, lines 54-57); and conductive liquid contained in the liquid guide chamber by a predetermined amount (Col. 4, Lines 54-57), wherein when the portable terminal is rotated, the conductive liquid flows in a direction of gravity to connect a particular sensing terminal to another sensing terminal thereby creating a conductive path for generating the sensing signal (Col. 4, Lines 38-66); wherein the controller determines a rotating



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(multidirectional) direction of the screen depending on the sensing signal output from the sensing terminals connected by the conductive liquid (Col. 3, Lines 32-38); at least one buffering chamber provided to an end of the sensing body, for buffering an abrupt change in the flow of the conductive liquid and two spherical buffering chambers formed at opposite ends of the sensing body ((see figures 8,9 both the end of the tubes are spherical in shape and buffering the movement of the mercury or conductive liquid across it. Ant abrupt change in the movement of the conductive liquid would be buffered by spherical and shape of the tube. The any directional change is processed by electrode Col. 4, Lines 38-66, Col. 4, Line 67 to Col. 5, Line 25); the plurality of sensing terminals comprise: a first sensing terminal mounted in a particular position of the sensing body; a second sensing terminal spaced apart from the first sensing terminal with the liquid guide chamber intervening there between (Col. 5, Lines 2-5, Col. 4, Lines 12-20); a third sensing terminal spaced apart from the first sensing terminal along a length of the sensing body; and a fourth sensing terminal spaced apart from the third sensing terminal with the liquid guide chamber intervening there between (Coll. 4, Lines 21-27, Col. 5, Lines 5-25) and the sensing device includes a first direction sensing element mounted in a top-to bottom direction and a second direction sensing element mounted in a transverse direction of the screen (Col. 4, lines 12-27, see figures 5-9).

The reason to combine Hansen with Lieu et al. is to have a display with conductive liquid gravity switches for controlling movement of the display images in an X-Y plane on a video display and position of a variable in both positive and negative directions along a single axis (Col. 1, Line 66, to col. 2, Line 4).

Thus it would have been obvious to one in the ordinary skill in the art at the time of invention was made to incorporate the teaching of Hansen in the teaching of Lieu et al. to be able to have a display with conductive liquid gravity switches for controlling movement of the display images in an X-Y plane on a video display and position of a variable in both positive and negative directions along a single axis applicable in an electronic gaming display.

Further Regarding Claim 8, as disclosed by Hansen in Claim 7, at least one buffering chamber provided to an end of the sensing body, for buffering an abrupt change in the flow of the conductive liquid and two spherical buffering chambers formed at opposite ends of the sensing body (see figures 8,9, both the end of the tubes are spherical in shape and buffering the movement of the mercury or conductive liquid across it. An abrupt change in the movement of the conductive liquid would be buffered by spherical and shape of the tube. The any directional change is processed by electrode, Col. 4, Lines 38-66, Col. 4, Line 67 to Col. 5, Line 25).

Further Regarding Claim 9, as disclosed by Hansen in Claim 7, the sensing device comprises: two spherical buffering chambers formed at opposite ends of the sensing body (see figures 8,9, both the end of the tubes are spherical in shape and buffering the movement of the mercury or conductive liquid across it. An abrupt change in the movement of the conductive liquid would be buffered by spherical and shape of the tube. The any directional change is processed by electrode, Col. 4, Lines 38-66, Col. 4, Line 67 to Col. 5, Line 25).

Further Regarding Claim 10 as disclosed by Hansen in Claim 7, the plurality of sensing terminals comprise: a first sensing terminal mounted in a particular position of the sensing body; a second sensing terminal spaced apart from the first sensing terminal with the liquid guide chamber intervening there between (Col. 5, Lines 2-5, Col. 4, Lines 12-20); a third sensing terminal spaced apart from the first sensing terminal along a length of the sensing body; and a fourth sensing terminal spaced apart from the third sensing terminal with the liquid guide chamber intervening there between (Coll. 4, Lines 21-27, Col. 5, Lines 5-25)

Further Regarding Claim 11, as disclosed by Hansen in Claim 7, the sensing device includes a first direction sensing element mounted in a top-to bottom direction and a second direction sensing element mounted in a transverse direction of the screen (Col. 4, lines 12-27, see figures 5-9).

### ***Response to Arguments***

8. Applicant's arguments filed 07-13-2007 have been fully considered but they are not persuasive.

Applicant argues the prior art of Lieu fails to disclose a sensing signal according to a rotating direction of the screen;

Examiner disagrees the portable terminal of prior art of Lieu discloses it detects the orientation of the terminal. Lieu not only discloses the processor control adjustments of orientation of the display screen, but also sensing the orientation of the display screen with sliding or moving ball from one hemispherical detent to next and per sensor sensing and

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generating signal to processor displaying image per detected final orientation and displaying the image in the upright position (pages 4,5 paragraphs 61,62). Lieu without going in detail calls this as an automatic operation (page 4, paragraph 55). However, Lieu does disclose portable terminal having a processor with software, LCD display and memory (pages 2,3, paragraphs 30-39).

Since Lieu's portable terminal is processing images on the display screen, using processor (computer processing unit), it is inheriting all the change of orientation is controlled by processor and therefore there is electronic signal for every operation; including electronic signal using sensor sensing of the display screen reorientation (pages 2-4, paragraphs 30-52). In fold over telephone; the folded telephone covered with protected cover does not display screen with screen's final orientation and display screen with keyboard in fold over telephone is a singular body frame. Therefore since a user can manually rotate the screen image with keyboard keys, and orient the screen accordingly; Lieu keeps the body orientation sensor of the telephone with the keyboard. However, the orientation sensor of keyboard not only sensing orientation of keyboard but whole telephone body that includes display screen; as such it is specifically sensing orientation of display screen. Therefore Lieu does disclose the sensing signal generated by processor of the telephone based on the orientation of the body of the telephone; the sensor signal is for display screen sensing change in orientation of the display screen. The LCD or liquid crystal display; of Lieu are active matrix display for PDA or telephone (LCD being active matrix is well known to one ordinary skill in the art Herrmann et al. (US 6,335,928 B1) Col. 2, Lines 24-41, figure 1, Aho et al. (US 6198941 B1) Figure 1, Col. 3, Line 60 to Col. 4, Line 41). Therefore reorientation of the each pixel has to be carried out with respect to co-ordinate assigned with respect to origin of the image according to X-axis and Y-axis. Therefore Lieu does

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anticipate applicant's independent Claim 1, and Claim 13 limitations as recited below and addressed in claim rejection above; "a sensing signal according to a rotating direction of the screen; and a controller for determining the rotating direction of the screen according to the sensing signal, and controlling the video processor to convert a format of the data in an opposite direction of the determined rotating direction by converting coordinate values of the data in order to display the data in an upright direction"

### ***Conclusion***

9. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Prabodh M. Dharia whose telephone number is 571-272-7668. The examiner can normally be reached on M-F 8AM to 5PM.

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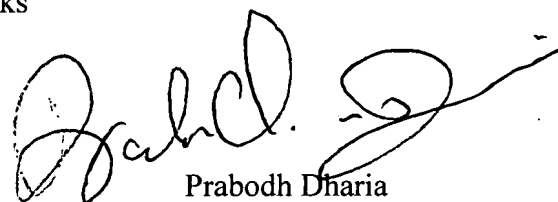
11. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

A handwritten signature in black ink, appearing to read 'Prabodh Dharia', with a long horizontal flourish extending to the right.

Prabodh Dharia

Full Signatory Authority Program

AU 2629

August 23, 2007